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Subject: Cursory Check of Prototype CV-24

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1. Introduction

This report contains the findings of a cursory check of a prototype model of the CV-2A. The CV-2A is a miniature transistorized converter. When used with a standard AM broadcast receiver signals within the range of 8-12. mc can be received. An RCA model 4X-648 receiver was used throughout the tests.

2. Summary of Test Data

2.1. Frequency Range

The frequency range of the CV-2A extends from 3.000 mc to 12.049 mc.

2.2. Sensitivity

Sensitivity at 10db S/N ratio was measured with the receiver gain controls adjusted at 3.000 mc for 1.0 milliwatt of output power with 15 μv input. The receiver gain controls were not adjusted again during this test. The μv input was adjusted, at each test frequency, to obtain an increase of 10 db in output power over that with the modulation of the signal generator switched off. Raw sensitivity was considered to be the μv input required to obtain 100 milliwatts of output power with the gain control of the receiver set for maximum.

Frequency MC.		Sensitivity microvolts	
Signal	Crystal	Raw	At 10db S/N
2.940	4.440	48	17.0
3.000	4.500	17.2	8.6
4.002	5.502	12.5	5.8
5.001	6.501	8.8	4.5
6.000	7.500	10.4	5.4
7.000	8.500	12.9	5.6
8.001	9.501	19	5.8
9.000	10.500	20	8.3
10.000	11.500	23	9.0
11.000	12.500	19.4	6.6
12.049	13.549	22	8.4
12.565	14.065	135	50

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2.3. Raw Noise Output (CV-2A antenna terminals shunted with 300Ω)

	Raw Noise Output	
Signal Frequency	Volts	Milli-watts
2.940	0.028	0.098
3.000	0.028	0.098
4.002	0.027	0.091
5.001	0.027	0.091
6.000	0.0245	0.075
7.000	0.026	0.0845
8.001	0.0285	0.1013
9.000	0.0285	0.1013
10.000	0.023	0.067
11.000	0.0235	0.069
12.049	0.0225	0.0633
12.549	0.0225	0.0633

2.4. Internal Spurious Response

The CV-2A and receiver were tuned for normal operation at 5.001 mc. The receiver was tuned throughout its range and returned to its original setting. The CV-2A was tuned throughout its range. No internal spurious response was noted.

2.5. Response Due to Unwanted Signals

The receiver and CV-2A were tuned for normal operation at 5.001 mc. The signal generator was then tuned from .150 to 30 mc with a constant output. No responses due to unwanted signals were noted except at the IF frequency, image frequency, generator harmonic frequencies. All remaining responses were down more than 40db.

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2.6. Battery Power Drain

Frequency MC	Batter Power Drain Milliamperes	Volts
3.000	0.83	1.44
6.000	0.33	1.44
12.049	0.53	1.44

3. Conclusions

No difficulty was encountered during the course of the tests with the CV-2A. This model compared favorably with the CV-2A used for a class A appraisal and analysis on 26 May 1958. The 10db S/N sensitivity was somewhat lower on this unit than on the one used for the tests of 26 May 1958.

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